DOCUMENT RESUME

ED 381 579 TM 023 046

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TITLE Refining the Charles F. Kettering Profile for a

Junior High School Student Population.

PUB DATE Jan 95

NOTE 24p.; Paper presented at the Annual Meeting of the

Southwest Educational Research Association (Dallas,

TX, January 26-28, 1995).

PUB TYPE Reports - Research/Technical (143) --

Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Curriculum Development; *Educational Environment;

Factor Analysis; *Factor Structure; Junior High Schools; *Junior High School Students; Program

Development; School Districts; *Test Use

IDENTIFIERS *CFK Ltd School Climate Profile (Fox et al)

ABSTRACT

This study investigated the factor structure of the Charles F. Kettering Scale, a measure of climate used frequently for program and curriculum revision. A total of 228 students from a junior high school campus of a large school district in the Southwestern United States completed the General Climate Factors section of the Kettering scale. Primary and second-order factor analysis suggested different subscales than those given for the profile. The first-order analysis did not verify the developers' proposed structure, and the second-order analysis found subscales that were cognitive-managerial and affective-experimental in nature. Refinements are offered to make the instrument more effective for the junior high school student population. One figure and four tables present study data. (Contains 37 references.) (Author/SLD)

REFINING THE CHARLES F. KUTTERING PROFILE FOR A JUNIOR HIGH SCHOOL STUDENT POPULATION

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DALLAS, TEXAS, JANUARY 26-28, 1995



ABSTRACT

Scale, a measure of climate used frequently for program and curriculum revision. A total of 228 students from a junior high school campus of a large school district in the Southwestern United States completed the General Climate Factors section of the Kettering scale. Primary and second-order factor analysis suggested different subscales than those given for the profile. Refinements are offered to make the instrument more effective for junior high school student population.



REFINING THE CHARLES F. KETTERING PROFILE FOR A JUNIOR HIGH SCHOOL STUDENT POPULATION

Research on school effectiveness has generated a renewed emphasis on the importance of an educational environment in which optimal teaching and learning occurs (Good & Brophy, 1986). Since climate studies look at the personnel and program components of a school environment, conceptual and operational definitions and measurement techniques have been diverse, however, prompting some to characterize organizational climate as a "fuzzy" concept (Guion, 1973). Nevertheless, there is agreement on several generalizations related to climate assessment.

The first generalization is that there is a core of activities organizations undertake to achieve their objectives, to maintain their internal environment, and to adapt to and maintain control over the "relevant" external environment (Argyris, 1970). The second point of agreement is that organizations are dynamic and that they operate in an historical perspective. The third generalization posits that for organizations to change, valid information on the actual status of the organization is necessary (Bennis, 1971).

Over the past several years, various climate measures have been frequently used to gather data from students and teachers for organizational planning (Bailey & Young, 1989-1990; Fox, Boies, Brainard, Fletcher, Huge, Martin, Maynard, Monasmith, Olivero, Schmuck, Shaheen, & Stegeman, 1973; Johnson, Dixon, & Robinson, 1987; Johnson, Dixon, & Johnson, 1992; Phi Delta Kappa, 1974). Many large school districts in the United States have used the instrument for program development and curriculum revision.



METHOD

Subjects

Two hundred twenty-eight junior high school students in major school district in the Southwestern United States completed Part A, the General Climate Factors section, of the Kettering instrument. There were 79 ninth graders, 66 eighth graders, and 83 seventh graders.

Procedure

Subjects filled out the General Climate Factors profile, designed to be used in school settings, in their school classrooms or work areas. They were not required to sign their names but were asked to complete a short demographic section indicating their status. All the students were from middle-class backgrounds.

Instrument

The instrument was designed to be used in school settings. As a part of the test development, the content validity was assessed by ask-ing over 200 educators throughout the United States to respond to the items (Dennis, 1979). The test's developers felt at least eight factors contributed to a school's climate. The two overriding goals were productivity and satisfaction. The test's developers tried to write items that assessed a cooperative, caring atmosphere with a staff focused on students' needs, working cooperatively within the context of a well-managed organization. The Profile is composed of four sections: Part A, General Climate Factors (40 questions); Part B, Program Determinants (35 questions); Part C, Process Determinants (40 questions); and Part D, Material Determinants (15 questions) (Howard, Howell, & Brainard, 1987).



The General Climate Factors has eight subscales: (1) Respect (Items 1-5), (2) Trust (Items 6-10), (3) High Morale (Items 11-15), (4) Opportunity for Input (Items 16-20), (5) Continuous Academic and Social Growth (Items 21-25), (6) Cohesiveness (Items 26-30), (7) School Renewal (Items 31-35), and (8) Caring (Items 36-40). Five questions (variables) comprise each subscale. The scaling technique used is two discrepancy-format columns. Each column has four descriptors: 1 = almost never, 2 = occasionally, 3 = frequently, and 4 = almost always.

RESULTS

Data Analysis

We used the SAS principal components program (SAS Institute, Inc., 1986) to examine the construct validity of the General Climate Factors section of the Kettering instrument. Nunnally (1967) noted that some researchers refer to construct validity as "factorial validity." A relevant question pertaining to performing a principal components analysis is if different factors will emerge if 1s are put in the main diagonal than if communalities are used. Gorsuch (1983) suggests that with 30 or more variables, the differences between solutions are likely to be small and lead to similar interpretations. Harman (1967) stated, "There is much evidence in the literature that for all buy very small sets of variables, the resulting factorial solutions are little affected by the particular choice of communalities in the principal diagonal of the correlation matrix" (p. 83). Nunnally (1978) noted, "It is very safe to say that if there are as many as 20 variables in the analysis, as there are in nearly all exploratory factor analyses, then it does not matter what one puts in the diagonal spaces" (p. 418). A somewhat conservative conclusion is that when the number of



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variables is moderately large, say larger than 30, and the analysis contains virtually no variables expected to have low communalities, that is 0.4, then practically any of the factor procedures will lead to the same interpretations (Stevens, 1986).

Determining the number of factors to extract from the correlation matrix is a fundamental decision in any analysis (Thompson & Borello, 1986). Many researchers follow the recommendations of Guttman (1954) and extract all factors with eigenvalues greater than one. Other researchers feel the screen test is superior to other methods for determining the number of factors to extract (Cattell, 1965). We used the eigenvalue criterion for this study since the number of respondents was about 250 and the mean communality was 0.57 for the "What Is" part of the scale and 0.60 for the "What Should Be" portion (Stevens, 1986).

Because the Kettering instrument uses two discrepancy-format columns, we performed two separate first-order principal components analyses, one for the "What Is" (left) side of the scale and one for the "What Should Be" (right) side of the scale. The "What Is" analysis yielded eleven factors with eigenvalues greater than or equal to 1.0, while the "What Should Be" analysis isolated twelve factors. The eleven prerotation eigenvalues for the "What Is" part of the scale were 9.17, 2.02, 1.70, 1.52, 1.39, 1.38, 1.22, 1.19, 1.13, 1.05, and 1.04. The twelve prerotation eigenvalues for the "What Should Be" part of the scale were 8.52, 1.87, 1.78, 1.77, 1.50, 1.45, 1.39, 1.20, 1.19, 1.13, 1.10, and 1.01. Some have argued that retaining and rotating too few factors has a more serious negative effect on the factor structure than rotating too many, and that it is robably better to err in the direction of overfactoring if one is to err at all (Cattell, 1952, 1958; Rummell, 1970). Results of these solutions involve a first factor that might be characterized as a general or g factor. This is



a factor with which most of the items were highly correlated and suggests the existence of a unidimensional factor structure. In general, the presence of a g factor does no mean that there is only one interpretable factor, but rather that there is a large overriding factor with additional factors reflecting nuances of the factor structure (Daniel, 1991). One result of these analyses was a matrix of correlations among the factors. The interfactor correlation matrices can be factored just as the two 40 x 40 intervariable correlation matrices can be. This method is called second-order factor analysis. Kerlinger (1984) noted that "While ordinary factor analysis is probably well understood, second-order factor analysis, a vitally important part of the analysis, seems not to be widely known and understood" (p.xiv). It is important to realize that researchers often want to analyze data with second-order factor analysis, because various levels of analysis give different perspectives (Gorsuch, 1983; Johnson & Johnson, in press). As Thompson (1990, p. 579) explained, "The first-order analysis is a close-up view that focuses on the details of the valleys and peaks in mountains. The second-order analysis is like looking at the mountains at a greater distance, and yields a potentially different perspective on the mountains as constituents of a range. Both perspectives may be useful in facilitating understanding of data."

These "What Is" and "What Shall Be" factors each accounted for 60% of the variance for each of the respective part of the scale. See Table 1 for the means and standard deviations for the sets of data for the group. The matrices of correlations among the factors were calculated, and the interfactor correlation matrices were factored just as the two 40 x 40 intervariable correlation matrices were. Second-order factor analysis seems not to be widely known and understood. Kerlinger (1984), Thompson and Borrello (1986), and



Thompson and Miller (1981) have published examples of applications using both primary and second-order factor findings, and these examples are very helpful to those wishing to conduct higher-order analyses.

The decision to extract second-order factors was based on the finding that the first-order varimax solutions involved numerous multiple loadings, suggesting a first-order oblique solution as well as a second-order result. An approximate check as to whether a loading is statistically significant can be obtained by doubling the standard error, i.e., doubling the critical value for significance for an ordinary correlation. The statistically significant value for a sample size of 228 is approximately .32 (Stevens, 1986). Very often in research, the minimum value is set at 0.3 in absolute magnitude. See Tables 2 and 3 for the first-order varimax and promax rotated factor pattern matrices.

Insert Table 1 about here

Four second-order factors were extracted from the "What Is" interfactor correlation matrix, while five second-order factors were extracted from the "What Should Be" interfactor correlation matrix. The factors were rotated to the varimax criterion. Second-order factors such as these are then often interpreted. However, Gorsuch (1983) argued that this is not desirable:

Interpretations of the second-order factors would need to be based upon the interpretations of the first-order factors that are, in turn, based upon the interpretations of the variables. Whereas, it is hoped that the investigator knows the variables well enough to interpret them, the accuracy of



interpretation will decrease with the first-order factors, will be less with the second-order factors, and still less with the third-order factors. To avoid basing interpretations upon interpretations of interpretations, the relationships of the original variables to each level of the higher-order factors are determined (p. 245).

The first-order promax rotated factors, therefore, were post-multiplied by the second-order varimax rotated factors, and the product matrices (for "What Is" and "What Should Be") were then rotated to the varimax criterion. Table 4 presents these factor pattern coefficients for items that had coefficients greater than 0.32 in absolute magnitude.

Insert Tables 2 and 3 about here

We used the generalized Kuder-Richardson reliability formula, coefficient alpha (Cronbach, 1951; Ebel, 1965; Novick & Lewis, 1967), to estimate the reliability of the instrument. This formula was appropriate since a Likert-type scaling format was employed. The Cronbach alphas for the second-order "What Is" factors (subscales) were subscale one (.77), subscale two (.52), subscale three (.48), subscale four (.30), and the composite for all "What Is" questions (.83). The Cronbach alphas for the second-order "What Should Be" factors (subscales) were subscale one (.71), subscale two (.60), subscale three (.58), subscale four (.47), subscale five (.20), and the composite for all "What Should Be" questions (.85).

Insert Table 4 about here

DISCUSSION

The factors presented in Table 4 indicate that the "What Is" column questions are comprised of 20 questions for factors one through four. The factor adequacy for the "What Should Be" questions is also given in Table 4. Factors one through five are comprised of 25 questions.

Overall, these data suggest there are four "What Is" second-order subscales and five "What Should Be" second-order subscales. There are eleven first-order "What Is" factors and twelve first-order "What Should Be" factors. The instrument does not seem to be structured psychometrically exactly as was originally proposed by its authors in suggesting eight "What Is" and eight "What Should Be" subscales (Fox, et. al., 1973).

The two-column response (discrepancy format) seems appropriate from a research perspective, because of its applicability in general or first-time assessment trials (Johnson & Dixon, 1984; Witkin, 1977). However, with the use of only a four-point scale, a question arises as to whether there may indeed be a reduction in the respondents' discriminative power (Jenkins & Taber, 1977; McKelvie, 1978; Rotter, 1972).

There is evidence, for example, that five-point scales are the most reliable (McKelvie, 1978), at least in measuring attitude-judgement tasks. McKelvie proposed using five or six categories. He further suggested there is not psychometric advantage in a large number of scale categories and, on the other hand, discriminative power and validity may be reduced when fewer than five categories are used.

In an agree/disagree context, Jenkins and Taber (1977) found that the number of response categories above five did not, in any situation, yield a significant increase in Likert



discriminability. In addition to the fact that the literature suggests a five- or six-point scale for Likert instrumentation, in our own work we have found that the following six-category response choices recommended by Rotter (1972) seem to reflect equidistant psychological order: 1 = disagree strongly; 2 = disagree; 3 = tend to disagree; 4 = tend to agree; 5 = agree, and, 6 = agree strongly.

We recognize that restriction of range or variability does attenuate product-moment correlation coefficients, which in turn impacts factor structure (Thompson, Wasserman, Gyurke, Matula, Mitchell, & Carr, 1994). If subjects respond generally close to the measurement "floor" or "ceiling", their score variability will be smaller, and correlation coefficients among these scores will be attenuated. We noted some junior high subjects tended to have more homogeneous scores than other students.

Conclusion

Based on our analysis, the currently used subscale subdivisions may be inappropriate. The test's developers used only content validity in the construction of the test. The general test development literature suggests, however, that at least two types of validity measures be used in scale development (American Psychological Association, 1985). When the developers departed from this conventional approach to test construction, they arbitrarily designated and assigned names to various subscales in their instrument. However, our first-order analysis did not verify the instrument developers' proposed structure. Our second-order solution found subscales that were cognitive-managerial and affective-experimental in nature. Furthermore, with the use of only a 4-point scale and the possible reduction in the respondent's discriminative power and the test's validity, at least a 5-point scale seems

desirable. The suggested refinements for the Kettering scale are offered to help make the instrument more effective for a junior high student population.



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FIGURE 1 INSTRUMENT QUESTIONS FOR THE CFK SCALE

Respect

- 1. In this university even low achieving students are respected.
- 2. Teachers treat students as persons.
- 3. Parents are considered by this university as important collaborators.
- 4. Teachers from one subject area or grade level respect those from other subject areas.
- 5. Teachers in this university are proud to be teachers.

Trust

- 6. Students feel that teachers are "on their side."
- 7. While we don't always agree, we can share our concerns with each other openly.
- 8. Our president is a good spokesman before the board of regents for our interests and our needs.
- 9. Students can count on teachers to listen to their side of the story and to be fair.
- 10. Teachers trust students to use good judgement.

High Morale

- This university makes students enthusiastic about learning.
- 12. Teachers feel pride in this university and its students.
- 13. Attendance is good; students stay away only for urgent and good reasons.
- 14. Parents, teachers, and students would rise to the defense of this university's program if it were challenged.
- 15. I like working in this university.

Opportunity for Input

- 16. I feel that my ideas are listened to and used in this university.
- When important decisions are made about the programs in this university, I, personally, have heard about the plan beforehand and have been involved in sor 2 of the discussions.
- 18. Important decisions are made in this university by a governing council with representation from students, faculty, and administration.
- 19. While I obviously can't have a vote on every decision that is made in this university that affects me, I do feel that I can have some important input into that decision.
- 20. When all is said and done, I feel that I count in this university.

Continuous Academic and Social Growth

- 21. The teachers are "alive"; they are interested in life around them; they are doing interesting things outside of the university.
- 22. Teachers in this university are "out in front," seeking better ways of teaching and learning.
- 23. Students feel that the university program is meaningful and relevant to their present and future needs.
- 24. The president is growing and learning, too. He or she is seeking new ideas.
- 25. The university supports parent growth. Regular opportunities are provided for parents to be involved in learning activities and in examining new ideas.

Cohesiveness

- 26. Students would rather attend this university than transfer to another.
- 27. There is a "we" spirit in this university.
- 28. Administration and teachers collaborate toward making the university run effectively, there is little administrator-teacher tension.
- 29. Differences between individuals and groups (both among faculty and students) are considered to contribute to the richness of the university; not as divisive influences.
- 30. New students and faculty members are made to feel welcome and part of the group.

School Renewal

- 31. When a problem comes up, this university has procedures for working on it; problems are seen as normal challenges; not as "rocking the boat."
- 32. Teachers are encouraged to innovate in their classroom rather than to conform.
- 33. When a student comes along who has special problems, this university works out a plan that helps that student.
- 34. Students are encouraged to be creative rather than to conform.
- 35. Careful effort is made, when new programs are introduced, to adapt them to the particular needs of this community and this university.

Caring

- 36. There is someone in this school that I can always count on.
- 37. The president really cares about students.
- 18. I think people in this school care about me as a person; are concerned about more than just how well 1 perform my role at the university (as student, teacher, parent, etc.)
- 39. The university is a nice place to be because I feel wanted and needed there.
- 40. Most people at this university are kind.

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TABLE 1
DESCRIPTIVE STATISTICS FOR THE 228 SUBJECTS

Item	"Wha Colu		"What S		Item		at Is" umn	"What S Be" Co	
	M	SD	M	SD		M	SD	M	SD
1	3.04	0.95	3.61	0.75	21	2.64	1.01	3.43	0.81
2	3.26	0.93	3.81	0.59	22	2.89	0.97	3.60	0.69
3	2.92	1.02	3.42	0.82	23	2.93	0.99	3.64	0.72
4	3.33	0.90	3.66	0.72	24	2.99	0.99	3.64	0.72
5	3.05	0.98	3.50	0.89	25	2.64	1.03	3.35	0.90
6	2.26	0.99	. 3.20	0.89	26	3.14	0.97	3.49	0.91
7	2.75	1.05	3.47	0.75	27		1.09	3.56	0.92
8	3.21	0.89	3.74	0.56 28		2.90	1.04	3.36	1.00
9	2.50	1.03	3.56	0.79	29	2.73 0.99	3.33	0.88	
10	2.87	1.02	3.52	0.77	30	3.19	0.97	3.77	0.57
11	2.63	0.97	3.51	0.79	31	2.93	1.06	3.52	0.86
12	2.97	0.98	3.66	0.66	32	2.96	0.91	3.48	0.80
13	2.50	1.07	3.43	0.92	33	3.16	0.97	3.76	0.56
14	3.15	0.94	3.67	0.66	34	2.97	0.94	3.47	0.82
15	3.16	1.07	3.50	0.97	35	2.79	0.95	3.50	0.77
16	2.19	1.06	3.16	0.88	36	3.33	0.97	3.77	0.77
17	1.94	1.04	2.93	1.02	37	3.24	0.94	3.75	0.62
18	2.96	1.01	3.48	0.76	38	3.08	0.94	3.67	0.66
19	2.36	1.02	3.23	0.90	39	2.82	1.06	3.53	0.00
20	3.00	1.06	3.52	0.85	40	3.12	1.00	3.74	0.65

TABLE 2 VARIMAX ROTATED FACTOR PATTERN MATRICES FOR "WHAT IS" SCALE ITEMS (N = 228)

Item no.					What	Is	·————		<u>-</u>		
	1	2	3	4	5	6	7	8	9	10	11
1	0.127	0.096	0.081	0.014	-0.046	0.103	0.086	0.613	-0.002	-0.003	0.092
2	0.121	0.103	0.465	0.204	-0.265	0.110	-0.169	-0.048	0.300	0.011	0.351
3	-0.162	0.117	-0.013	-0.011	0.084	0.150	0.675	0.055	0.185	0.056	0.002
4	-0.028	0.146	0.111	0.089	0.086	0.025	0.036	0.067	0.102	-0.011	0.815
5	0.006	0.179	0.653	0.083	-0.006	-0.044	0.093	0.199	0.030	0.170	0.048
6	0.174	0.295	0.536	-0.139	0.138	0.264	-0.056	-0.079	-0.158	0.073	0.206
7	0.274	0.098	0.068	0.086	-0.089	0.663	-0.061	0.158	-0.079	0.144	0.179
8	0.093	0.530	0.228	0.093	0.015	0.257	-0.065	0.077	0.003	0.014	0.116
9	0.348	-0.047	0.419	0.030	0.204	0.213	0.157	0.176	-0.073	0.037	0.151
10	0.024	0.000	0.176	0.179	-0.093	0.353	0.030	0.568	0.215	0.000	-0.028
11	0.131	0.382	0.338	0.227	0.196	0.320	0.027	-0.247	0.211	-0.102	-0.187
12	0.131	0.301	0.622	0.125	0.179	-0.016	0.042	0.148	0.126	-0.213	-0.078
13	0.065	0.013	0.137	0.017	0.626	0.051	0.035	-0.254	0.015	0.166	0.136
14	0.196	0.090	0.055	-0.010	0.061	0.061	0.029	0.104	0.760	0.041	0.092
15	0.509	0.135	0.332	-0.212	0.039	-0.060	0.022	0.110	0.298	0.089	0.111
16	0.265	0.398	0.160	0.248	-0.162	0.039	0.470	0.120	-0.152	-0.009	0.048
17	0.233	-0.066	0.233	0.20′.	-0.005	-0.468	0.462	-0.273	0.090	0.429	0.037
18	-0.092	0.047	0.149	0.041	0.218	0.563	0.207	0.145	0.090	0.005	-0.157
19	0.363	-0.044	0.236	0.170	-0.165	-0.′ 4	0.487	0.117	-0.124	-0.206	-0.023
20	0.561	0.321	0.198	-0.121	0.085	0.027	0.183	0.127	-0.002	0.197	-0.116
21	0.153	0.048	0.401	0.354	-0.061	0.161	0.212	-0.029	0.038	0.267	0.073
22	0.188	0.035	0.543	0.254	0.108	0.256	0.153	0.095	0.185	0.098	-0.038
23	0.040	0.043	0.018	0.140	0.695	0.107	-0.067	0.115	0.115	-0.020	-0.045
24 25	0.191	0.473	0.264	0.233	-0.022	0.090	0.123	-0.077	0.139	0.324	-0.131
25 26	0.083 0.553	0.063 0.146	0.177 -0.009	0.385 -0.283	0.249 0.240	-0.055	0.265 0.170	0.034 0.037	0.462 0.363	0.077 -0.197	0.006 0.075
26 27	0.287	0.140	0.180	0.283	0.240	0.081 -0.081	-0.024	0.037	0.075	0.197	0.073
28	0.287	0.370	0.160	0.111	0.237	0.239	0.258	0.165	-0.114	0.020	0.009
28 29	0.180	0.331	0.143	0.733	0.183	0.239	0.238	0.103	0.044	-0.037	0.138
30	0.343	0.483	0.132	0.733	0.021	0.134	-0.012	0.028	0.329	-0.001	-0.034
31	0.170	0.433	0.016	0.040	0.021	-0.115	0.126	0.026	0.073	0.127	0.182
32	0.170	0.225	0.058	0.469	0.345	-0.090	0.238	0.090	-0.026	0.069	0.094
33	0.219	0.320	0.054	-0.081	0.158	0.266	0.046	0.028	-0.013	0.596	0.065
34	0.111	0.205	0.181	0.125	0.248	0.007	-0.163	0.362	0.160	0.434	-0.235
35	0.084	0.370	0.010	0.038	0.256	0.402	0.162	0.020	0.178	0.130	0.080
36	0.561	0.020	-0.029	0.239	0.165	0.053	0.015	0.154	-0.047	0.216	0.247
37	0.426	0.526	0.224	0.028	-0.012	0.137	0.036	0.118	0.061	0.075	-0.027
38	0.699	0.197	0.062	0.105	-0.010	0.002	0.077	0.190	0.133	0.140	-0.019
39	0.645	0.177	0.124	0.239	-0.151	0.077	-0.107	-0.009	0.118	0.139	-0.081
40	0.654	0.212	0.123	0.147	0.157	0.195	-0.089	-0.174	0.068	-0.160	-0.049



TABLE 2 (continued) VARIMAX ROTATED FACTOR PATTERN MATRICES FOR "WHAT SHOULD BE" SCALE ITEMS ($\underline{N}=228$)

Item no.					Wha	t Should	Ве					
	1	2	3	4	5	6	7	8	9	10	11	12
1	0.013	0.091	-0.022	0.107	0.056	0.041	0.009	0.007	0.062	0.765	0.012	0.048
2	0.159	0.036	0.066	0.072	0.112	0.024	0.041	0.789	-0.067	-0.062	0.055	0.042
3	-0.017	0.207	0.062	-0.000	0.129	0.120	-0.106	0.026	0.664	-0.050	0.011	0.149
4	-0.121	-0.008	0.271	0.197	-0.164	0.048	0.124	0.486	0.268	0.286	-0.219	0.045
5	0.113	0.159	0.735	0.112	0.029	0.109	0.009	0.137	0.061	-0.004	-0.014	0.027
6	0.306	0.323	0.072	0.141	-0.088	0.202	0.011	-0.025	0.054	0.407	0.028	0.239
7	0.200	0.249	0.116	0.285	0.205	-0.110	0.149	0.315	0.274	0.205	-0.077	-0.173
8	-0.100	0.394	0.298	-0.111	0.318	0.174	0.394	0.020	0.030	0.095	-0.018	0.033
9	0.025	0.670	0.198	-0.015	-0.045	0.290	0.084	0.097	0.000	0.084	0.055	0.129
10	0.084	0.151	0.040	-0.046	0.102	0.041	0.726	0.001	-0.043	0.017	0.057	0.117
11	0.167	0.154	0.553	0.249	0.172	0.057	0.165	-0.003	0.015	0.438	-0.029	-0.043
12	0.108	0.172	0.237	-0.082	0.137	0.390	0.268	0.037	0.072	0.133	0.132	0.407
13	0.088	0.147	0.133	0.075	0.055	0.766	0.097	0.079	0.072	0.054	0.016	0.032
14	0.124	∙0.255	0.365	0.168	0.080	v.411	0.122	-0.202	0.284	-0.000	0.104	0.186
15	0.271	0.078	0.592	0.135	0.016	0.396	-0.023	-0.013	0.093	-0.060	0.152	-0.085
16	0.332	0.088	0.136	0.416	0.220	0.096	0.205	0.020	-0.158	0.262	0.210	-0.039
17	0.090	0.073	0.158	0.746	0.051	0.033	0.053	0.066	-0.012	0.115	0.128	-0.054
18	0.009	-0.011	0.113	0.310	-0.007	0.179	0.424	0.185	0.172	0.121	0.047	0.251
19	0.076	-0.178	0.082	0.347	0.036	0.079	0.222	0.106	-0.058	0.063	0.577	0.233
20	0.432	0.352	0.058	0.310	-0.085	0.328	0.195	-0.221	0.046	0.137	0.199	-0.061
21	0.303	0.216	-0.104	0.269	0.181	0.121	0.456	0.189	0.228	-0.088	-0.060	0.102
22	0.361	0.415	0.119	0.144	0.100	-0.092	0.276	0.100	0.095	0.166	0.149	-0.200
23	0.068	0.027	-0.640	-0.064	-0.089	0.073	0.215	-0.029	0.653	0.223	0.340	-0.067
24	C 097	0.242	-0.019	0.221	0.700	0.040	0.154	-0.032	0.124	-0.116	-0.064	-0.102
25	0.418	-0.063	0.224	0.246	0.110	-0.058	0.053	-0.014	0.504	0.043	-0.174	0.143
26	0.069	0.211	0.062	0.067	0.087	0.071	-0.088	-0.026	0.150	-0.008	0.702	-0.069
27	0.015	0.091	0.477	0.169	0.265	-0.164	0.093	0.091	-0.106	-0.058	0.310	0.242
28	-0.015	0.024	-0.036	0.386	0.500	0.267	-0.142	0.211	0.061	0.246	0.039	-0.022
29	0.045	0.472	-0.066	0.121	0.250	-0.017	0.070	0.113	0.245	0.275	0.030	0.144
30	0.438	-0.160	0.248	-0.022	0.410	0.173	0.236	0.206	-0.003	0.192	0.088	0.059
31	0.196	0.012	0.212	0.005	0.620	-0.046	0.127	0.023	0.003	0.102	0.171	0.173
32	0.297	0.353	-0.119	0.136	0.043	0.366	0.037	0.444	-0.012	0.118	0.109	-0.053
33	0.127	0.385	0.167	0.363	0.069	-0.177	0.203	0.147	0.115	-0.062	-0.119	0.351
34	0.204	0.092	-0.021	0.008	0.022	0.037	0.079	0.001	0.101	0.062	0.018	0.724
35	-0.007	0.065	0.192	0.488	0.271	0.110	-0.156	0.089	0.129	0.053	0.123	0.147
36	0.611	0.088	0 170	-0.012	-0.104	-0.046	0.076	0.370	0.082	-0.125	0.290	0.078
37	0.349	0.559	C.177	0.102	0.224	0.019	0.145	-0.107	0.132	-0.002	0.154	0.062
38	0.687	0.049	0.037	0.193	0.122	0.013	0.069	0.031	0.066	0.003	-0.043	0.196
39	0.716	0.161	0.053	0.004	0.090	0.258	-0.049	0.010	0.016	0.035	-0.005	0.110
40	0.543	0.005	0.254	-0.266	0.174	-0.074	0.086	0.256	-0.036	0.315	0.137	-0.032



TABLE 3 ORDERED PROMAX ROTATED FACTOR PATTERN MATRICES FOR "WHAT IS" SCALE ITEMS ($\underline{N}=228$)

Item N							What Is					
Scale N	lame	1	2	3	4	5	6	7	8	9	10	11
20 Input		0.515	0.235	0.118	-0.220	0.006	-0.015	0.127	0.066	-C.056	0.207	-0.180
36 Carin	g	0.592	-0.094	-0.169	0.253	0.197	0.026	-0.079	0.107	-0.041	0.172	0.196
38 Carin		0.718	0.086	-0.090	0.044	-0.057	-0.039	0.011	0.141	0.114	0.112	-0.073
39 Carin		0.674	0.074	-0.036	0.172	-0.171	0.011	-0.167	-0.039	0.074	0.113	-0.13
40 Carin	ıg	0.691	0.084	-0.028	0.124	0.154	0.106	-0.151	-0.225	-0.000	-0.167	-0.18
8 Trust		-0.048	0.531	0.155	0.054	-0.057	0.200	-0.077	0.043	-0.066	0.017	0.120
30 Cohes	siveness	0.260	0.431	-0.034	0.267	-0.055	0.010	-0.037	-0.023	0.266	-0.022	-0.01
31 Renev	wal	0.032	0.744	-0.078	0.019	-0.072	-0.173	0.111	0.056	0.042	0.117	0.20
5 Respe	ect	-0.176	0.097	0.741	-0.012	-0.048	-0.120	0.034	0.171	-0.040	0.133	0.042
6 Trust	•	0.028	0.221	0.579	-0.217	0.112	0.183	-0.110	-0.115	-0.239	0.081	0.172
9 Trust		0.283	-0.211	0.417	-0.022	0.208	0.175	0.079	0.150	-0.108	0.008	0.09
12 High	Morale	-0.020	0.190	0.674	0.067	0.129	-0.129	-0.017	0.099	0.016	-0.246	-0.05
21 Grow	⁄th	0.037	-0.050	0.333	0.278	-0.069	0.103	0.162	-0.049	-0.001	0.227	0.039
22 Grow	⁄th	0.063	-0.133	0.506	0.165	0.084	0.189	0.099	0.080	0.118	0.068	-0.06
29 Cohe	siveness	-0.008	0.088	0.009	0.780	0.122	0.090	-0.040	0.087	-0.017	-0.104	0.09
23 Grow	vth	0.016	-0.082	-0.014	0.208	0.730	0.079	-0.135	0.069	0.056	-0.008	-0.02
7 Trust		0.240	0.016	-0.075	0.035	-0.113	0.693	-0.065	0.185	-0.087	0.154	0.11
18 Input	į.	-0.180	-0.046	0.085	-0.005	0.168	0.598	0.232	0.164	0.049	0.042	-0.18
3 Respe	ect	-0.278	0.129	-0.080	-0.057	-0.014	0.186	0.736	0.039	0.219	0.064	0.00
1 Respo	ect	0.076	0.051	0.066	-0.004	-0.102	0.143	0.069	0.618	0.007	-0.034	0.07
27 Cohe	esiveness	0.202	0.296	0.142	0.103	0.182	-0.127	-0.097	-0.400	0.014	-0.001	0.01
	Morale	0.158	0.008	-0.050	-0.065	-0.019	0.031	0.055	0.102	0.803	0.021	0.14
33 Rene	wal	0.123	0.282	-0.048	-0.161	0.104	0.264	0.012	-0.008	-0.044	0.639	0.00
4 Resp	ect	-0.144	0.161	0.097	0.141	0.091	-0.018	0.014	0.039	0.171	-0.082	0.86
_	Morale	0.470	0.021	0.317	-0.311	-0.021	-0.125	-0.023	0.074	0.292	0.068	0.09
37 Carir		0.329	0.482	0.144	-0.052	-0.108	0.071	0.002	0.063	-0.009	0.076	-0.05
19 Input		0.347	-0.121	0.190	0.118	-0.196	-0.023	0.460	0.093	-0.130	-0.260	0.07
16 Input		0.151	0.405	0.047	0.196	-0.247	0.000	0.452	0.064	-0.187	-0.046	0.01
24 Grov		0.050	0.443	0.146	0.139	-0.103	0.013	0.094	-0.131	0.056	0.329	-0.14
35 Rene	ewal	-0.025	0.332	-0.130	0.008	0.180	0.391	0.173	-0.011	0.150	0.160	0.07
2 Resp		0.014	0.045	0.447	0.139	-0.282	0.019	-0.187	-0.040	0.296	-0.052	0.37
25 Grov		-0.004	-0.042	0.079	0.374	0.223	-0.119	0.232	-0.008	0.448	0.030	0.04
26 Cohe	esiveness	0.583	0.046	-0.107	-0.323	0.166	0.050	0.167	-0.004	0.384	-0.194	0.06
32 Rene		0.048	0.166	-0.042	0.520	0.355	-0.150	0.159	0.011	-0.074	0.024	0.10
	Morale	0.016	-0.088	0.134	0.047	0.678	-0.008	-0.038	-0.315	-0.027	0.182	0.13
10 Trus		-0.044	-0.094	0.121	0.134	-0.150	0.395	0.037	0.609	0.213	-0.025	0.03
17 Inpu		0.166	-0.145	0.152	0.118	-0.012	-0.095	0.421	-0.314	0.093	0.403	0.00
34 Reno		0.032	0.108	0.153	0.075	0.216	-0.009	-0.232	0.333	0.084	0.447	0.25
	n Morale	0.015	0.296	0.234	0.172	0.145	0.221	0.014	-0.287	0.099	-0.084	0.1
_	esiveness	0.058	0.299	0.027	0.272	0.141	0.205	0.213	0.111	-0.165	0.037	0.11



TABLE 3 (Continued) Ordered Promax Rotated Factor Pattern Matrices for "What Should Be" Scale Items ($\underline{N}=228$)

	tem No./						What Sh	ould Be					
	cale Name	1	2	3	4	5	6	7	8	9	10	11	12
20	Input	0.345	0.282	0.003	0.271	-0.153	0.248	0.134	-0.263	-0.037	0.081	0.132	0.059
38	Caring	0.760	-0.034	-0.069	0.118	0.068	-0.033	-0.018	-0.010	-0.008	-0.034	-0.130	0 216
39	Caring	0.804	0.098	-0.016	-0.090	0.045	0.224	-0.149	-0.004	-0.039	-0.002	-0.121	0.132
9	Trust	-0.074	0.709	0.211	-0.083	-0.115	0.268	0.038	0.083	-0.054	0.048	0.024	0.124
22	Growth	0.237	0.345	0.070	0.078	0.014	-0.155	0.203	0.029	0.047	0.101	0.114	-0.211
29	Cohesiveness	-0.038	0.460	-0.151	0.047	0.206	-0.077	-0.003	0.049	0.222	0.276	0.050	0.171
37	Caring	0.262	0.528	0.132	0.021	0.158	-0.044	0.062	-0.164	0.089	-0.049	0.120	0.059
5	Respect	0.020	0.154	0.808	0.063	-0.064	0.100	-0.101	0.103	0.002	-0.078	-0.061	-0.080
16	Input	0.222	0.002	0.040	0.427	0.147	0.019	0.132	-0.046	-0.248	0.210	0.139	-0.064
17	Input	-0.033	-0.016	0.129	0.808	-0.014	-0.033	-0.026	0.016	-0.124	0.066	0.147	-0.097
35	Renewal	-0.082	0.022	0.161	0.510	0.240	0.064	-0.258	0.061	0.082	0.026	0.161	0.103
31	Renewal	0.130	-0.024	0.100	-0.043	0.593	-0.087	0.064	-0.036	0.005	0.065	0.120	0.136
24	Growth	0.015	0.150	-0.081	0.155	0.717	0.031	0.136	-0.080	0.073	-0.185	-0.082	-0.126
13	High Morale	0.019	0.108	0.106	-0.001	0.035	0.775	0.087	0.102	0.009	-0.039	-0.058	-0.010
10	Trust	-0.058	0.118	-0.087	-0.118	0.047	0.025	0.825	-0.048	-0.101	-0.072	-0.012	0.100
18	Input	-0.102	-0.063	0.000	0.260	-0.071	0.154	0.443	0.42	0.085	0.042	-0.065	0.214
21	Growth	0.206	0.094	-0.206	0.170	0.141	0.108	0.476	0.151	0.142	-0.210	-0.089	-0.113
4	Respect	-0.204	-0.033	0.265	0.140	-0.241	0.048	0.069	0.447	0.210	0.238	-0.201	-0.009
2	Respect	0.131	-0.004	0.020	0.042	0.057	0.058	0.000	0.811	-0.093	-0.153	0.053	0.015
3	Respect	-0.051	0.196	0.043	-0.109	0.129	0.099	-0.181	0.012	0.714	-0.078	0.092	0.133
1	Respect	-0.049	0.086	-0.113	0.086	0.003	-0.047	0.085	-0.083	0.038	0.829	-0.022	0.072
26	Cohesiveness	-0.069	0.210	0.035	0.100	0.058	-0.000	-0.169	-0.021	0.245	-0.043	0.776	-0.089
34	Renewal	0.262	0.134	-0.169	-0.044	-0.016	-0.007	0.053	-0.020	0.077	0.088	-0.005	0.767
25	Growth	0.439	-0.151	0.160	0.137	0.061	-0.105	-0.055	-0.080	0.458	0.000	-0.188	0.113
30	Cohesiveness	0.397	-0.243	0.123	-0.109	0.356	0.146	0.172	0.157	-0.035	0.107	-0.026	0.009
36	Caring	0.616	0.040	0.110	-0.070	-0.190	-0.075	-0.014	0.372	0.087	-0.208	0.259	0.067
40	Caring	0.546	-0.028	0.179	-0.354	0.096	-0.115	-0.026	0.203	-0.020	0.283	0.030	-0.048
6	Trust	0.290	0.320	-0.004	0.087	-0.165	0.123	-0.089	-0.081	-0.011	0.425	-0.033	0.267
8	Trust	-0.264	0.396	0.265	-0.206	0.270	0.168	0.409	-0.031	-0.013	0.023	-0.075	-0.019
14	High Morale	0.063	-0.302	0.316	0.118	0.055	0.381	0.085	-0.219	0.263	-0.071	0.067	0.106
33	Renewal	0.069	0.367	0.107	0.319	-0.008	-0.214	0.159	0.090	0.011	-0.096	-0.110	0.347
11	High Morale	0.032	0.110	0.536	0.203	0.066	-0.011	0.042	-0.107	-0.076	0.401	-0.113	-0.120
15	High Morale	0.189	0.036	0.647	0.087	-0.051	0.378	-0.127	-0.019	0.050	-0.159	0.089	-0.186
27	Cohesiveness	-0.105	0.105	0.448	0.196	0.194	-0.205	0.026	0.054	-0.117	-0.101	0.313	0.171
19	Input	-0.061	-0.211	-0.049	0.416	-0.021	0.007	0.204	0.094	-0.052	0.004	0.602	0.198
28	Cohesiveness	-0.083	-0.049	-0.106	0.383	0.501	0.237	-0.227	0.182	0.016	0.217	0.041	-0.045
12	High Morale	0.026	0.188	0.128	-0.169	0.080	0.360	0.253	0.014	0.013	0.076	0.062	0.378
32	Renewal	0.020	0.297	-0.180	0.078	-0.007	0.354	-0.018	0.453	-0.043	0.042	0.070	-0.038
2.3	Growth	-0.056	-0.012	-0.160	-0.152	-0.007	0.003	0.174	-0.067	0.746	0.042	0.412	-0.077
7.5		0.098	0.158	0.133	0.208	0.113	-0.150	0.055	0.241	0.740	0.141	-0.073	-0.201
•	11401	0.070	0.150	0.074	0.200	0.157	0.150	0.055	0.271	0.214	0.171	0.075	3.201



ROTATED PATTERN COEFFICIENTS FOR SALIENT ITEMS FOR "WHAT IS" AND "WHAT SHOULD BE" ($\underline{\rm N}$ = 228)

*												
		What Is	Is					Wh	What Should Be			
Item	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Trem	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
5	Respect	.324	.271	083	.114	10	Trust	.478	.107	.055	094	.029
6	Trust	.411	101	.079	.102	11	Morale	.522	.109	.132	124	.294
15	Morale	.379	.093	.204	.034	16	Input	.515	.044	.232	.012	056
16	Input	.667	.050	122	035	22	Growth	.583	.252	.279	.312	099
19	Input	889.	023	156	058	30	Cohesiveness	809.	-,136	068	118	.101
70	Input	.595	.105	.161	118	36	Caring	.425	900'-	.012	.048	084
28	Cohesiveness	.366	910.	680.	.022	38	Caring	.368	.293	.133	050	097
37	Caring	.518	.218	.303	.123	40	Caring	.727	297	046	990.	9/0.
38	Caring	.538	.161	.031	016	4	Input	.129	.350	.228	590:	811.
4	Respect	660:-	442	-:062	8/1.	21	Growth	.314	.492	.295	.297	.002
14	Morale	128	.383	.266	.070	24	Growth	.269	.492	127	.262	275
25	Growth	680.	.489	000	034	25	Growth	.170	.579	.104	144	.283
29	Cohesiveness	.201	.388	078	42،	33	Renewal	890.	.583	170	.117	.120
34	Renewal	038	.482	.016	161	6	Trust	970.	-:007	.384	000	±20.
0	Trust	.244	151.	.332	272.	13	Morale	163	118	.450	148	090
23	Growth	152	.162	.444	232	70	Input	.268	.191	989.	091	312
56	Cohesiveness	309	052	.571	154	23	Growth	.046	690.	.431	014	.142
35	Renewal	.056	620.	.354	.107	7	Respect	351.	119	294	:463	.236
2	Respect	.165	.194	039	629.	12	Morale	.064	128	610.	-,321	007
7	Trust	.153	172	.087	.498	14	Morale	011	.091	.178	660	.116
						15	Morale	.218	.044	.212	389	082
						29	Cohesiveness	.038	.247	.072	.383	900:-
						4	Respect	950:-	.120	.046	.200	.753
						18	Input	.046	.226	.121	101	396:
						26	Cohesiveness	.101	178	.114	027	431

Note. - Salient items were items with pattern coefficients greater in absolute value than 0.30.